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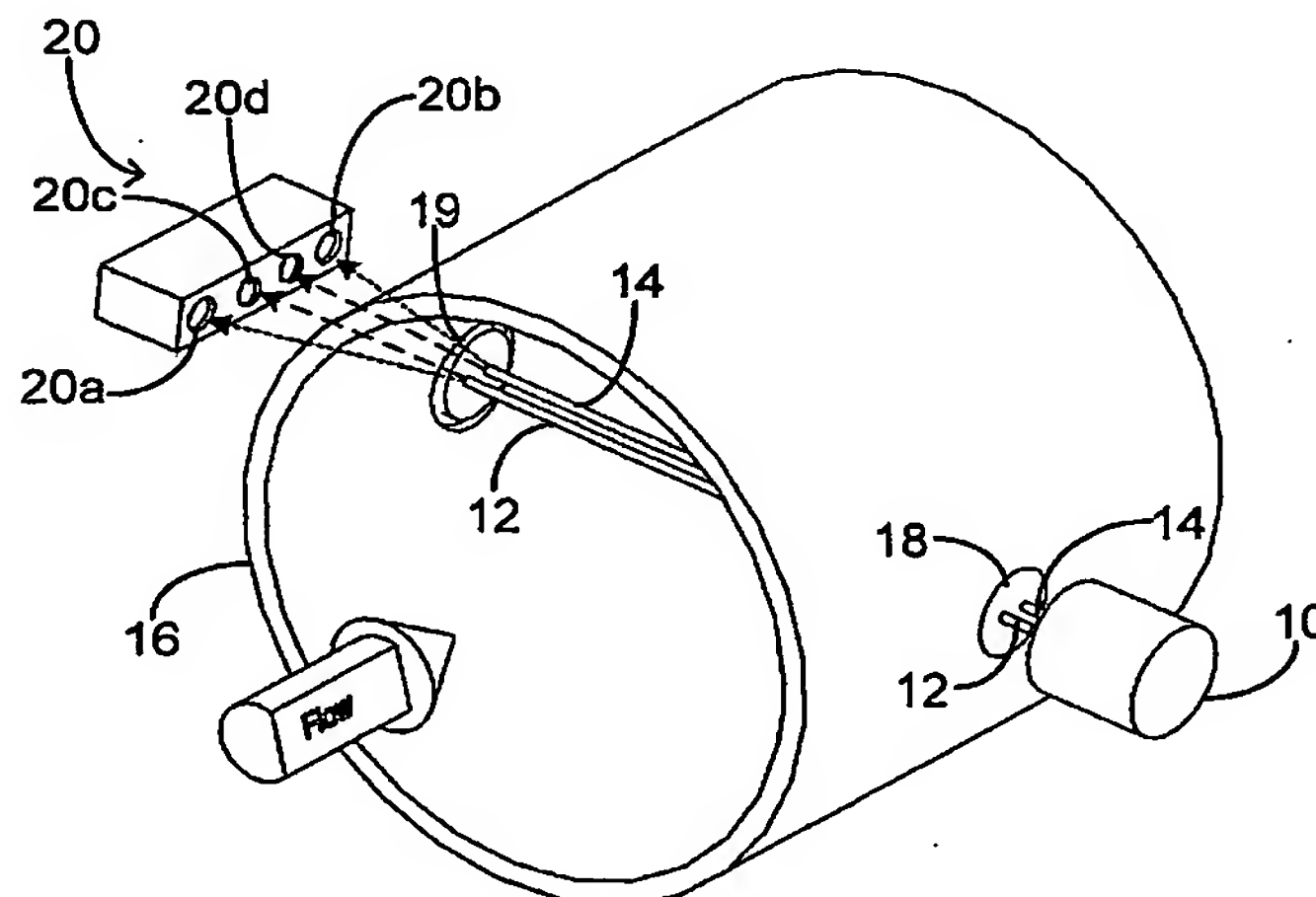
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(54) Title: OPTICAL DEVICE AND METHOD FOR SENSING MULTIPHASE FLOW



(57) Abstract: The invention provides a method for measuring the velocity of a multiphase fluid flowing in a pipe. The method comprises directing at least two collimated beams of light from an illuminator through the multiphase fluid by means of transparent portions of the pipe, the at least two collimated beams spaced apart in a direction of flow of the multiphase fluid by a predetermined distance; detecting scattered, deflected and attenuated light with at least two photodetectors to produce at least two signals, the at least two photodetectors associated with the at least two collimated beams; calculating a cross-correlation function between the at least two signals to determine a time delay between the signals; and, calculating the average velocity of the multiphase fluid by taking the ratio of the predetermined distance to the time delay.

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